# Electronic Waste Campaign Residential Survey Findings

June 2008

#### **Submitted to:**

California Integrated Waste Management Board (CIWMB)



# Submitted by:

The Applied Management & Planning Group

Gomez Research

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# **EXECUTIVE SUMMARY**

In 2006, the California Integrated Waste Management Board (CIWMB) expanded its statewide eRecycling campaign to increase awareness among Californians about how to properly dispose of electronic equipment, particularly televisions and computer monitors. The campaign capitalized on previous outreach efforts initiated by the Department of Toxic Substances Control and the CIWMB in 2004 by providing additional outreach to retailers, increased media coverage, and strategies for increasing traffic on the eRecycle.org website. The 2006 campaign was designed to educate the public about the importance of properly disposing electronic waste and to provide residents with specific information about where and how to safely dispose of unwanted equipment.

To evaluate the effectiveness of the campaign and to guide the development of the program, the Applied Management & Planning Group (AMPG) and Gomez Research were contracted to conduct a residential survey two years after the 2006 campaign was initiated. The purpose of the survey was to document residents' awareness and behaviors regarding the disposal of electronic equipment and to provide a baseline for tracking changes over time.

In 2008, a total of 400 residential surveys were conducted, yielding an overall margin of error of +/-5 percent at the 95 percent confidence level. All surveys were conducted in English using a random-digit-dialing (RDD) methodology, ensuring that both listed and unlisted numbers were included in the sample. For purposes of this report, the term "improper disposal" of electronic waste refers to the practice of disposing unwanted equipment along with the regular trash or storing these items in the home or garage. Key findings from the study are presented below.

# **Key Findings**

## **Awareness of Proper Electronic Waste Practices**

- More than eight-out-of-ten residents surveyed (84 percent) believe recycling e-waste is "very important" and only two percent characterized the problem as "not at all important." When asked why they believe it is important to recycle e-waste, respondents most frequently cited "harm to the environment" (52 percent), "the use of materials to make new equipment" (47 percent), and "the leaking of hazardous materials" (42 percent).
- A total of 85 percent of all residents surveyed were aware that televisions and computer monitors contain hazardous material and nearly two-thirds (65 percent) were aware that it's illegal to dispose of e-waste along with regular household trash. More than one-third of respondents (36 percent) were aware of the fee placed on the purchase of new electronics to help pay for their proper disposal.
- When asked where the would go for more information about how to recycle an old television or computer monitor, nearly half of residents surveyed said they would conduct a general internet search (46 percent), followed by 14 percent who would call or visit a government agency. A total of 11 percent of respondents reported that they would contact a retail store or a phonebook, and 10 percent would contact their local

waste management department. Fewer than 10 percent of all residents surveyed reported that they would contact an environmental organization or specific government website.

# **Current Practices**

- California residents are statistically more likely to have purchased a television (43 percent) rather than a computer (37 percent) in the last two years. <sup>1</sup>
- Among residents who had purchased a television, only 7 percent improperly disposed of their old television along with their regular trash or stored it in their home or garage. A total of 6 percent of residents who purchased a new television reported that they were storing their old television, and 1 percent reported that they disposed of their old television along with the regular trash.
- Residents who had purchased a new television were most likely to report that they were still using their old television (37 percent); followed by 27 percent who gave it away to family or friends, donated it to charities, or sold it; and 22 percent who disposed of it properly, either by taking it to a recycling center, a clean-up event, or returning it to a retailer.
- Among residents who had purchased a computer, 12 percent reported that they
  were storing their old computer monitor in their home or garage. No respondents
  reported that they had disposed of their old computer monitor along with the regular
  trash.
- Residents who had purchased a new computer were most likely to report that they were still using their old computer (32 percent), followed by 28 percent who gave it away to family or friends, donated it to charities, or sold it; and 21 percent who disposed of it properly, either by taking it to a recycling center, a clean-up event, or returning it to a retailer.
- Respondents who had not purchased a television in the last two years were asked what they would do if they needed to dispose of an old television; of those, 6 percent reported that they would store an unwanted television in their home or garage or throw it away with the regular trash. Respondents were most likely to report that they would take an unwanted television to a recycling center (36 percent), followed by 16 percent would said they would donate it to a charity or to family and friends.
- Respondents who had not purchased a computer in the last two years were asked what they would do if they needed to dispose of an old computer monitor; of those, 5 percent said they would store it in their home or garage or throw it away with the regular trash. Respondents were most likely to report that they would take an unwanted computer monitor to a recycling center (32 percent), followed by 26 percent who would donate it to charity or give it to family and friends.

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<sup>&</sup>lt;sup>1</sup> Significant at the 90 percent confidence level.

• Among all residents surveyed, 13 percent are currently storing unwanted televisions in their home or garage, and 16 percent are storing a computer monitor.<sup>2</sup> Of those who are storing equipment, the majority are storing one unwanted television (62 percent) and/or one computer monitor (73 percent). California residents are storing an average of 1.5 unwanted televisions and 1.4 unwanted computer monitors.

# **Recall of Public Education and Outreach**

- The majority of all residents surveyed (61 percent) recall seeing or hearing information about eRecycling. When asked where they say or heard the information, respondents most frequently cited television (42 percent) and print media (42 percent).
- More than one-third of all residents surveyed (35 percent) are familiar with the term eRecycling and, of those, 91 percent correctly understood the term to refer to the recycling of electronic equipment or the materials used to make such equipment. Respondents were less likely to have heard of the eRecycle website (9 percent); however nearly half of residents surveyed said they would be more likely to conduct a general internet search when looking for information on how to dispose of electronic equipment (45 percent) rather than lookup a specific government or environmental website (7 percent).
- Nearly one-quarter of all residents surveyed (23 percent) reported that they had seen signs in retail stores encouraging them to recycle old televisions and computer monitors. When asked to the name the stores where they saw the signs, respondents most frequently cited Best Buy, followed by Frys, Costco, Wal-Mart, Target and Staples.<sup>3</sup>

#### Impact of the Switch to Digital Television

- More than nine-out-of-ten residents surveyed (93 percent) reported that they were aware of the switch from analog to digital scheduled for 2009.
- A total of 28 percent of California residents are still using analog televisions.
- Among those residents currently using analog technology, more than half (55 percent) intend to keep using their older televisions by purchasing converter boxes (32 percent) or by purchase cable or satellite services (23 percent). A total of 26 percent of all analog television owners said they had not yet made a decision or did not know how they would prepare for the digital switch.

<sup>3</sup> There was no statistical difference in how frequently Frys, Costco, Wal-Mart, Target or Staples were mentioned.

<sup>&</sup>lt;sup>2</sup> Figures based on all respondents, regardless of whether they made a new purchase in the last two years. Among respondents who had purchased a new television, 6 percent were storing their old television. Among respondents who had purchased a new computer, 12 percent were storing their old computer monitor.

## **Conclusions and Recommendations**

Although no baseline data were collected prior to the launch of the eRecycling campaign, post-campaign findings suggest that outreach efforts have been effective in raising awareness of the importance of properly disposing of unwanted televisions and computers, and for educating the public about where and how they can safely dispose of these items. The overwhelming majority of California residents understand that televisions and computer monitors contain hazardous materials (85 percent) and two-thirds (65 percent) are aware that it is illegal to throw away electronic waste along with their regular trash. In terms of behavior, 7 percent of all residents who had purchased a new television in the last two years, and 12 percent of those who had purchased a computer, had improperly disposed of their unwanted equipment. <sup>4</sup> In addition, few California residents are stockpiling their unwanted electronic equipment. (Among all California residents, including those who have not made a purchase in the last two years, 13 percent are storing a television and 16 percent are storing a computer monitor.)

While the majority of Californians are not stockpiling electronic equipment, residents continue to value their unwanted televisions and computers and may be reluctant to dispose of these items. When asked what they did with their old equipment, the majority of residents surveyed reported that were still using their old televisions and computers or gave those items away to family, friends, or charities.

In addition, while more than one-third of all respondents were familiar with the term eRecycling, few respondents were familiar with the website address or had visited eRecycle.org. Nearly half of all respondents reported that they conduct general Internet searches when looking for information on e-waste rather than enter a specific web address.

Finally, the switch from analog television to digital is widely understood. Nevertheless, one-quarter of residents who own an analog television have not yet decided or "don't know" how they will prepare for the switch to digital technology.

Based on these findings, we recommend the following strategies to continue to promote the proper disposal, recycling and reuse of unwanted electronic equipment.

Recommendation 1: Continue to publicize the value of donating or selling unwanted televisions and computers to friends, family, and, particularly charities for reuse. Some California residents continue to see value in their used televisions and computers and may be reluctant to dispose or even recycle these items, causing a stockpile of unwanted equipment. For these residents, donation may be a persuasive alternative.

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<sup>&</sup>lt;sup>4</sup> The term "improper disposal" refers to the practice of throwing electronic waste out with the regular trash or storing it in the home or garage.

Recommendation 2: As the eRecycling program is further expanded, consider conducting the residential survey in both English and Spanish to parallel increased outreach to non-English speakers. As the campaign is further developed with expanded outreach to non-English speaking communities, consider conducting the tracking survey in English and Spanish to provide a more comprehensive profile of California residents and to identify community-specific approaches that are effective in targeting different populations.

Recommendation 3: Consider strategies for promoting the eRecycle.org website through search engine optimization and key word marketing to increase website traffic. Nearly half of residents surveyed said they would be more likely to conduct a general Internet search when looking for information on how to dispose of electronic equipment (45 percent) rather than lookup a specific government or environmental website (7 percent).

Recommendation 4: Continue to prepare for the 2009 switch to digital by emphasizing the various options that will allow consumers to continue to use their analog televisions, thereby reducing disposal requirements. A total of 28 percent of California residents have analog televisions and, of those, 19 percent are still undecided or "don't know" how the will adapt to the digital switch. While public awareness of the switch to digital technology is high, residents may not be as well informed about the pros and cons of various strategies for adapting their analog televisions.

# INTRODUCTION

Americans generate at least two million tons of consumer electronic waste each year. Rapid advances in technology and an expanding demand for new features further accelerate the generation of unwanted electronics, including computers, televisions, stereos, cell phones, copiers and other equipment. In California alone, more than 2.2 million computers are sold each year, and millions of obsolete computers and televisions are stockpiled in homes or garages because people lack the means or motivation to discard them.

As part of a larger effort to increase the proportion of unwanted equipment that is properly disposed, the California Integrated Waste Management Board (CIWMB) expanded its statewide e-Recycling campaign to increase awareness among Californians about how to safely dispose of e-waste, particularly televisions and computer monitors. The campaign, launched in 2006, capitalized on previous outreach efforts initiated by the Department of Toxic Substances Control and the CIWMB in 2004 by providing additional outreach to retailers, increased media coverage, and strategies for increasing traffic on the eRecycle.org website. The 2006 campaign was designed to educate the public about the importance of properly disposing electronic waste and to provide residents with specific information about where and how to safely dispose of unwanted equipment.

To evaluate the effectiveness of the campaign and to guide the development of the program, the Applied Management & Planning Group (AMPG) and Gomez Research were contracted to conduct a residential survey two years after the 2006 campaign was initiated. The purpose of the survey was to document residents' awareness and behaviors regarding the disposal of electronic equipment and to provide a baseline for tracking changes over time.

It should be noted that the residential survey, like all surveys, has self-reporting bias and should be used in conjunction with results from State waste reports to determine the extent to which residents are practicing proper waste reduction and disposal. Survey research depends on respondents providing truthful and accurate reports of their activities.

The remainder of this report presents the survey methodology and findings that emerged from the data analyses, and is organized as follows:

- The **Methodology** section, which describes data collection and statistical methods;
- The **Findings** section, documenting awareness of proper e-waste practices, current practices, and the potential impact of the switch to digital television in 2009;
- Conclusions and Recommendations; and,
- The **Appendices**, which include the survey instrument with frequencies and open-ended responses.

# **METHODOLOGY**

A total of 400 residential surveys were conducted, yielding an overall margin of error of +/-5 percent at the 95 percent confidence level. The margin of error was larger for some analyses, depending on the number of respondents who answered particular questions. Telephone numbers were generated using both random-digit-dialing, whereby telephone prefixes for selected zip

codes were identified, and the remaining four digits were randomly generated. All respondents were 18 years or older.

The surveys were conducted between May 23 and May 31, 2008 using a computer-assisted telephone interview (CATI) system, in which interviewers read questions from a computer screen and type respondents' answers directly into a database.

Chi Square and difference in proportion tests were conducted for all comparative analyses to identify whether observed differences among groups or categories were statistically significant.<sup>5</sup> All reported differences were statistically significant at the 95 percent confidence level unless otherwise noted.

For a copy of the survey, including frequencies, see **Appendix A.** 

#### **Caveats**

While survey results are based on a representative sample of English-speaking residents in California, caution should be used when extrapolating results to non-English-speakers. The 2008 survey was conducted exclusively with English-speaking residents. As a result, Hispanic residents were underrepresented in the study and the data were skewed toward residents with higher incomes and educational levels.

# **Report Organization**

This report has been organized around the following topical areas:

- Profile of Residents Surveyed;
- Awareness of Proper Electronic Waste Practices;
- Current Practices:
- Recall of Public Education and Outreach;
- Familiarity with the eRecycle.org Website; and,
- Impact of the Switch to Digital Television.

The next section of this report presents study findings.

<sup>&</sup>lt;sup>5</sup> A statistically significant difference means that the difference among groups is not by chance, and that a real difference exists among groups.

## **FINDINGS**

The following section presents a demographic profile of respondents surveyed in 2008, followed by detailed findings regarding residents' awareness of proper electronic waste practices and their compliance with those standards.

#### **Profile of Residents Surveyed**

**Table 1** presents the ethnic distribution of households surveyed. A total of 12 percent of residents surveyed identified themselves as Hispanic/Latino, 5 percent as African-American, 6 percent as Asian, and 66 percent as Caucasian. The survey was conducted in English only and, as a result, Hispanic residents were under represented in the sample. Statewide, Hispanic residents compose 36 percent of the population and Caucasians 43 percent. (U.S. Census Bureau State and County QuickFacts).

Table 1: Ethnic Distribution of Households Sampled Respondents Overall, 2008

	Hispanic/ Latino	African- American	Asian	Caucasian	Other	Refused
2008 (n=400)	12%	5%	6%	66%	6%	5%

<sup>\*</sup>Table based on: Q37: "Would you please tell me what ethnic group you identify with?" Base includes all respondents answered question

As seen in **Figure 1,** on the following page, nearly two-thirds (63 percent) of the households surveyed in 2008 had incomes above the median household income for California (\$50,000). This skew in the data toward higher income groups likely reflects the exclusion of non-English speakers who tend to have lower incomes than English-speaking residents. (U.S. Census Bureau State and County QuickFacts, compiled 2004).

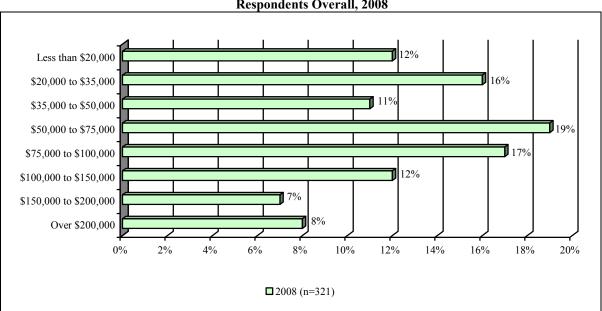


Figure 1: Income Distribution of Households Sampled Respondents Overall, 2008

\*Chart based on: Q38: "I am going to read some categories of household income. Please stop me when I reach the category of your total 2007 annual household income, before taxes." Base excludes respondents who answered, "don't know/refused."

**Figure 2** presents the educational level of respondents, which is higher than the State average. The highest level of education for more than half the households surveyed (62 percent) was a college or graduate degree. An additional 23 percent reported having some college or vocational training, and only 16 reported having a high school diploma or less.

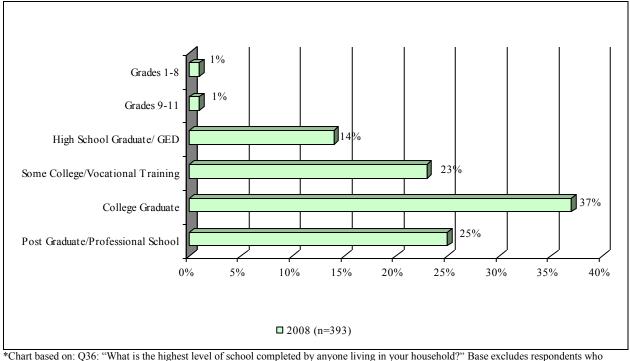


Figure 2: Educational Level of Households Sampled Respondents Overall, 2008

answered, "don't know/refused."

**Figure 3** presents the age distribution among respondents. Approximately one-third of respondents were between the ages of 30 and 40, one-third between the ages of 50 and 64, and one-third 65 and older. A total of 10 percent of the sample were between 18 and 29 years old. When compared with Census figures, the surveyed population was found to be older than the actual population of California

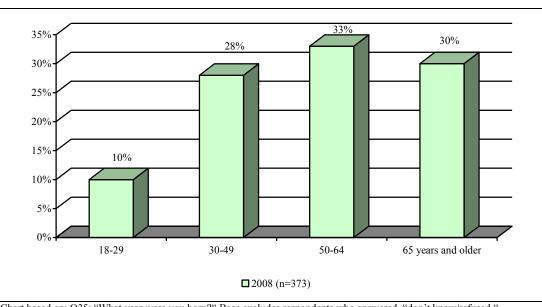


Figure 3: Age of Respondents Sampled Respondents Overall, 2008

<sup>\*</sup>Chart based on: Q35: "What year were you born?" Base excludes respondents who answered, "don't know/refused."

# **Awareness of Proper Electronic Waste Practices**

A key objective of the eRecycling campaign was to educate residents regarding the importance of recycling e-waste, including awareness for the hazardous materials contained in these items and the laws prohibiting residents from disposing of electronic waste along with their regular household trash.

Respondents were first asked how they would rate the importance of recycling e-waste. Results are presented in Figure 4. More than eight-out-of-ten residents surveyed (84 percent) believe recycling e-waste is "very important" and only two percent characterized the problem as "not at all important."

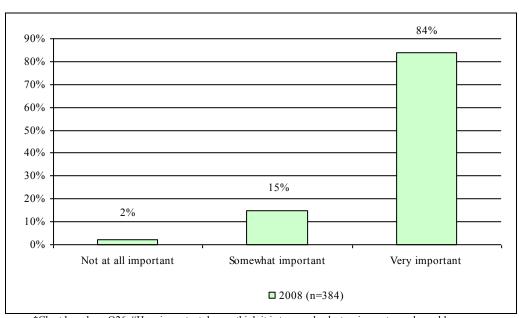


Figure 4: Perceived Importance of Recycling E-Waste Respondents Overall, 2008

\*Chart based on: Q26: "How important do you think it is to recycle electronic-waste, such as old televisions and computer monitors?" Base excludes respondents who answered, "don't know/refused."

Respondents who indicated that it was important to recycle e-waste were asked why. Respondents most frequently cited "harm to the environment" (52 percent), "the use of materials to make new equipment" (47 percent), and "the leaking of hazardous materials" (42 percent). See **Figure 5.** 

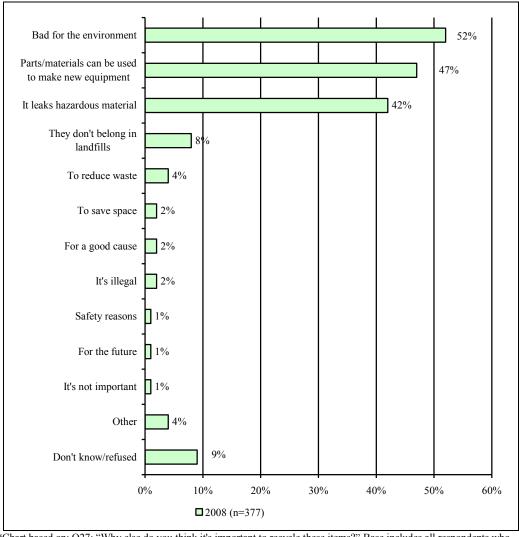


Figure 5: Reasons Given for Recycling E-Waste Among Respondents Who Believe eRecycling is "Very" or "Somewhat" Important, 2008

<sup>\*</sup>Chart based on: Q27: "Why else do you think it's important to recycle these items?" Base includes all respondents who answered the question.

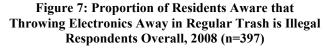
Next, respondents were asked directly if they were aware that electronic equipment contains toxic materials. Results are presented in Figures 6 and 7. A total of 85 percent of all residents surveyed were aware that televisions and computer monitors contain hazardous material and nearly two-thirds (65 percent) were aware that it is illegal to dispose of e-waste along with regular household trash.

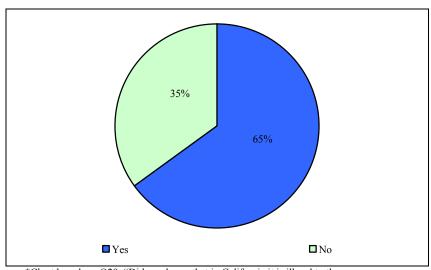
Respondents Overall, 2008 (n=397) 15%

Figure 6: Proportion of Residents Aware that **Televisions and Computer Monitors Contain Hazardous Material** 

85% Yes ■ No

\*Chart based on: Q28: "Before this survey, were you aware that television and computer monitors contain hazardous materials?" Q27: "Why do you think it's important to recycle these items. Base excludes respondents who answered, "don't know/refused."





\*Chart based on: Q29: "Did you know that in California it is illegal to throw away electronics in the trash because of the hazardous material they contain?" Base excludes respondents who answered, "don't know/refused."

More than one-third of all respondents (36 percent) were aware of the fee placed on the purchase of new electronics to help pay for their proper disposal, as seen in **Figure 8**.

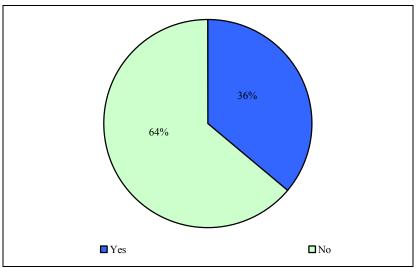


Figure 8: Proportion of Residents Aware of Recycling Fee Respondents Overall, 2008 (n=391)

<sup>\*</sup>Chart based on: Q30: "Before this survey, were you aware that there is a recycling fee placed on the purchase of new televisions and computers to help pay for their proper disposal?" Base excludes respondents who answered, "don't know/refused."

The survey also addressed how residents obtain information about disposing electronic equipment. When asked where they would go for more information about how to recycle an old television or computer monitor, nearly half of residents surveyed said they would conduct a general Internet search (46 percent), followed by 14 percent who would call or visit a government agency. Residents under 65 were more likely to report that they would conduct a general Internet search to find information, compared to older residents. A total of 11 percent of respondents reported that they would contact a retail store or a phonebook, and 10 percent would contact their local waste management department. Fewer than 10 percent of all residents surveyed reported that they would contact an environmental organization or specific government website. One quarter of respondents reported "don't know/refused." See Figure 9.

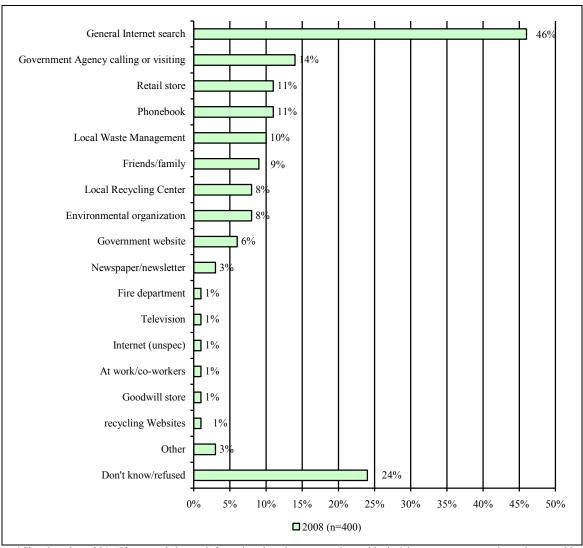


Figure 9: Where Residents Turn for Information on E-Recycling Respondents Overall, 2008

<sup>\*</sup>Chart based on: Q31: "If you needed more information about how to recycle an old television or computer monitor, where would you go?" Base includes all respondents who answered the question.

#### **Current Practices**

In addition to gauging awareness levels, the survey was designed to document how residents currently dispose of electronic equipment. Respondents were asked if they had purchased a television or computer in the last two years and, if so, what they did with their unwanted equipment. Residents who had not made a purchase were asked what they would do if they needed to dispose of an old television or computer monitor. Results are presented in **Figures 10** through **20**.

# Disposal of Televisions Among Residents Who Made a New Purchase

As seen in **Figure 10**, 43 percent of California residents had purchased a new television between 2006 and 2008. California residents were statistically more likely to have purchased a television than a computer (see results for computer purchases in **Figure 12**). <sup>6</sup>

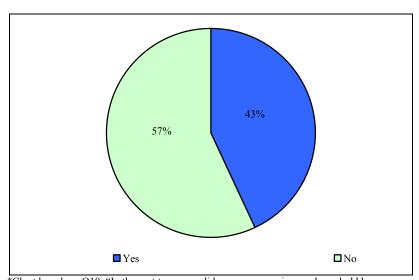


Figure 10: Proportion of Residents Who Purchased a Television in Last Two Years Respondents Overall, 2008 (n=400)

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<sup>\*</sup>Chart based on: Q10: "In the past two years did you or anyone in your household buy a new television?" Base includes all respondents who answered the question.

<sup>&</sup>lt;sup>6</sup> Significant at the 90 percent confidence level.

Residents who had purchased a television were asked what they did with their old television. Results are presented in Figure 11. Among residents who had purchased a television, only 7 percent improperly disposed of their old television along with their regular trash or stored it in their home or garage. (A total of 6 percent of residents who purchased a new television reported that they were storing their old television, and 1 percent reported that they disposed of their old television along with the regular trash.) Residents who had purchased a new television were most likely to report that they were still using their old television (37 percent); followed by 27 percent who gave it away to family or friends, donated it to charities, or sold it; and 22 percent who disposed of it properly, either by taking it to a recycling center, a clean-up event, or returning it to a retailer.

When asked why they decided to recycle their old television, the most frequently cited response was to help the environment, followed by convenience. When asked why they decided to donate their unwanted equipment, the most frequently cited response was to help others; few respondents cited the tax write off. Residents were most inclined to donate an unwanted television to a charity, followed by friends or family, church groups, or educational institutions.

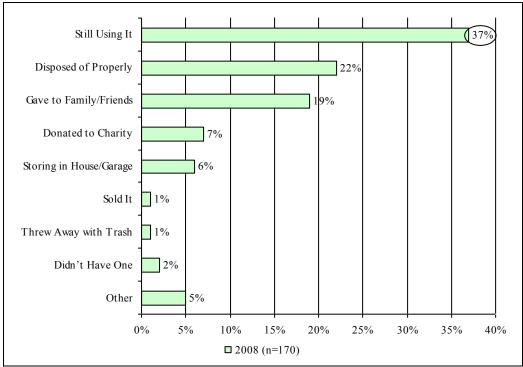


Figure 11: How Residents Disposed of Old Television Among Respondents Who Purchased a New Television, 2008

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<sup>\*</sup>Chart based on: Q11: "What did you do with your old television?" Base excludes respondents who answered, "don't know/refused." Statistically significant differences at the .05 level are circled.

<sup>&</sup>lt;sup>7</sup> Results based on extremely small samples. See Appendix A, Question 12a and 12b for specific breakdowns.

# Disposal of Computer Monitors Among Residents Who Made a New Purchase

As seen in **Figure 12**, 37 percent of California residents purchased a new computer between 2006 and 2008.

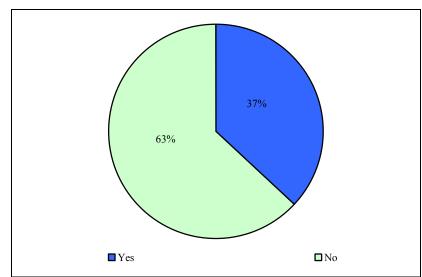


Figure 12: Proportion of Residents Who Purchased a Computer in Last Two Years Respondents Overall, 2008 (n=399)

\*Chart based on: Q13: "In the past two years did you or anyone in your household buy a new computer?" Base excludes respondents who answered, "don't know/refused."

Among those who made a purchase, 12 percent reported that they were storing their old computer monitor in their home or garage. (No respondents reported that they had disposed of their old computer monitor along with the regular trash.) See Figure 13 on the following page. Residents who had purchased a new computer were most likely to report that they were still using their old computer (32 percent), followed by 27 percent who gave it away to family or friends, donated it to charities, or sold it; and 21 percent who disposed of it properly, either by taking it to a recycling center, a clean-up event, or returning it to a retailer.

When asked why they decided to recycle their old computer monitor, the most frequently cited response was to help the environment. When asked why they decided to donate their unwanted equipment, the most frequently cited response was to help others; few respondents were motivated by the tax benefits. Residents are most inclined to donate their computers to a charity, followed by an educational institution and friends and family.

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<sup>&</sup>lt;sup>8</sup> Results based on extremely small samples. See Appendix A, Question 12a and 12b for specific breakdowns.

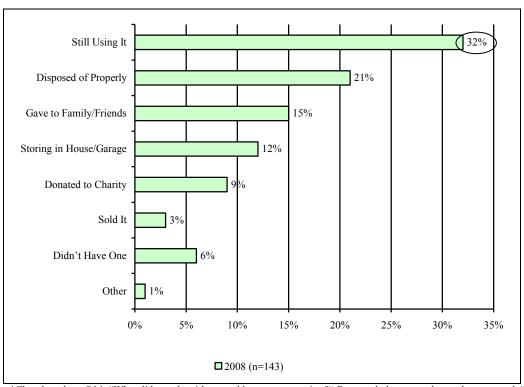


Figure 13: How Residents Disposed of Old Computer Monitor Among Respondents who Purchased a New Computer, 2008

\*Chart based on: Q14: "What did you do with your old computer monitor?" Base excludes respondents who answered, "don't know/refused." Statistically significant differences at the .05 level are circled.

# Intended Disposal of e-Waste Among Residents Who Have Not Made a Purchase

Respondents who had not made a purchase in the last two years were asked what they would do if they needed to dispose of those items at a later date. A total of 6 percent of respondents who had not made a purchase reported that they would store an unwanted television in their home or garage or throw it away with the regular trash. Respondents were most likely to report that they would take an unwanted television to a recycling center (36 percent), followed by 16 percent would said they would donate it to a charity or to family and friends. A total of 18 percent of respondents asked the question reported "don't know/refused," indicating that many respondents had difficulty determining what they would do at a future date. Results are presented in Figure 14.

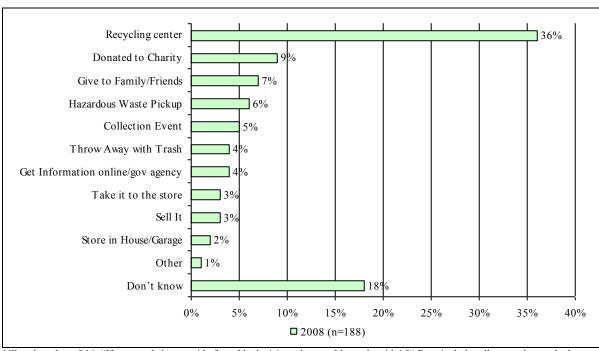


Figure 14: How Residents Intend to Dispose of Unwanted Television in Future Among Respondents Who Have Not Made a Purchase, 2008

<sup>\*</sup>Chart based on: Q16: "If you needed to get rid of an old television what would you do with it?" Base includes all respondents asked the question.

Respondents who had not made a purchase were asked what they would do if they needed to dispose of an old computer monitor; of those, 5 percent said they would store it in their home or garage or throw it away with the regular trash. Respondents were most likely to report that they would take an unwanted computer monitor to a recycling center (32 percent), followed by 26 percent who would donate it to charity or give it to family and friends. As with questions regarding their future disposal of a television, a total of 20 percent of respondents responded "don't know/refused" when asked how they would dispose of a computer monitor. See Figure 15.

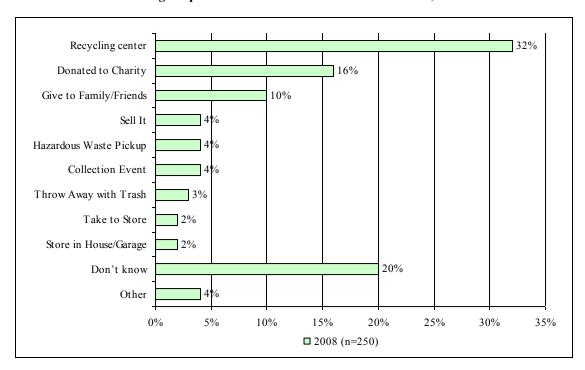


Figure 15: How Residents Intend to Dispose of Unwanted Computer Monitor in Future Among Respondents Who Have Not Made a Purchase, 2008

<sup>\*</sup>Chart based on: Q20: "If you needed to get rid of an old computer monitor what would you do with it?" Base includes all respondents.

# Likelihood of Donating Equipment

To determine how motivated residents are to donate their used equipment, respondents were asked directly how likely they would be to give away their unwanted televisions or computer monitors. A total of 40 percent of respondents reported that they would be "somewhat likely" or "very likely" to donate an unwanted television, and 60 percent reported that they would be likely to donate an unwanted computer monitor. Respondents who had not made a purchase were statistically more likely to report that they would donate an unwanted computer than an unwanted television, as seen in Figures 16a and 16b.

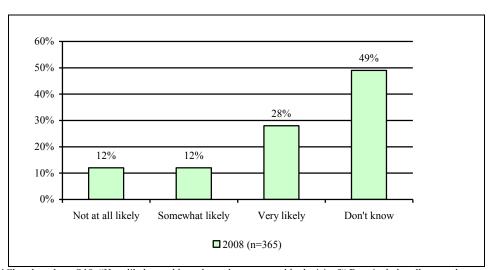


Figure 16a: Likelihood of Donating Unwanted Television Among Respondents Who Have Not Made a Purchase in the Last Two Years, 2008

<sup>\*</sup>Chart based on: Q18: "How likely would you be to donate your old television?" Base includes all respondents asked the question.

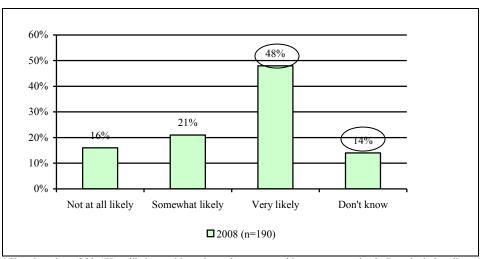


Figure 16b: Likelihood of Donating Unwanted Computer Monitor Among Respondents Who Have Not Made a Purchase in the Last Two Years, 2008

-

<sup>\*</sup>Chart based on: Q22: "How likely would you be to donate your old computer monitor?" Base includes all respondents asked the question. "Statistically significant differences are circled.

<sup>&</sup>lt;sup>9</sup> Respondents who indicated that they would donate equipment were not asked the question.

# The Storage of Unwanted Electronic Equipment

Given that the stockpiling of electronic equipment is a potential concern, all residents surveyed were asked if they were storing any unwanted television or computer monitors and, if so, how many. Results are presented on the following pages. Among residents surveyed, 13 percent are currently storing at least one unwanted television in their home or garage, and 16 percent are storing at least one computer monitor, as seen in **Figures 17** and **18** below. <sup>10</sup>

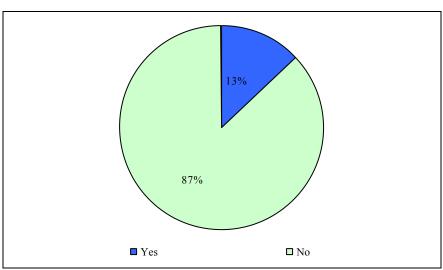


Figure 17: Proportion of Residents Currently Storing Unwanted Televisions Respondents Overall, 2008 (n=400)

\*Chart based on: Q24: "Do you currently have any unwanted televisions stored in your home or garage?" Base excludes respondents who answered, "don't know/refused."

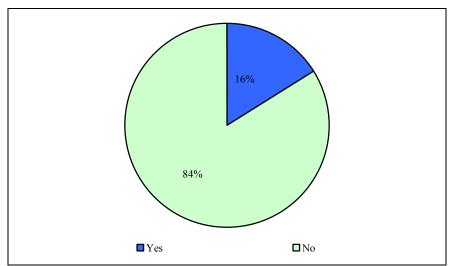


Figure 18: Proportion of Residents Currently Storing Unwanted Computer Monitors Respondents Overall, 2008 (n=400)

<sup>\*</sup>Chart based on: Q24b: "Do you currently have any unwanted computer monitors stored in your home or garage?" Base includes all respondents asked the question.

<sup>&</sup>lt;sup>10</sup> Figures based on all respondents, regardless of whether they made a new purchase in the last two years. Among respondents who had purchased a new television, 6 percent were storing their old television. Among respondents who had purchased a new computer, 12 percent were storing their old computer monitor.

Of those who are storing equipment, the majority are storing one unwanted television (62 percent) and/or one computer monitor (73 percent). California residents are storing an average of 1.5 unwanted televisions and 1.4 unwanted computer monitors. Results are presented in **Figures** 19 and 20.

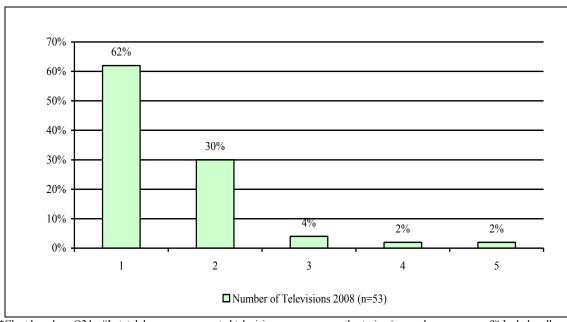


Figure 19: Number of Unwanted Televisions Stored in Home or Garage Among Respondents Storing Equipment, 2008

\*Chart based on: Q24a: "In total, how many unwanted televisions are you currently storing in your home or garage?" Includes all respondents asked the question. Mean = 1.5 televisions.

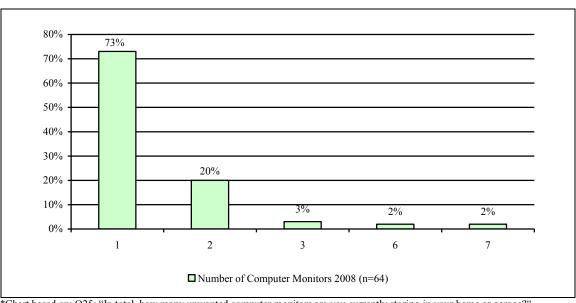


Figure 20: Number of Unwanted Computer Monitors Stored in Home or Garage, Among Respondents Storing Equipment, 2008

\*Chart based on: Q25: "In total, how many unwanted computer monitors are you currently storing in your home or garage?" Includes all respondents asked the question. Mean = 1.4 computer monitors.

#### **Recall of Public Education and Outreach**

The residential survey included questions designed to measure the extent to which residents were exposed to advertising, public information, or news stories about eRecycling, and whether they could recall the messages. Results are presented in **Figure 21**. **The majority of all residents surveyed (61 percent) recall seeing or hearing information about eRecycling**. Among those respondents who remembered a specific message, most cited proper disposal procedures for electronics and e-waste facilities. For a complete list of open-ended responses for this question, see **Appendix B**.

Respondents Overall, 2008

70% 60% 61% 39% 39% 40% 30% 10% No

Per Proposition of the Control of

Figure 21: Proportion of Residents Who Recall Seeing or Hearing Advertising, Public Information, or News Stories in the Last Two Years Respondents Overall, 2008

When asked where they say or heard the information, respondents most frequently cited television (42 percent) and print media (42 percent), as seen in **Figure 22**.

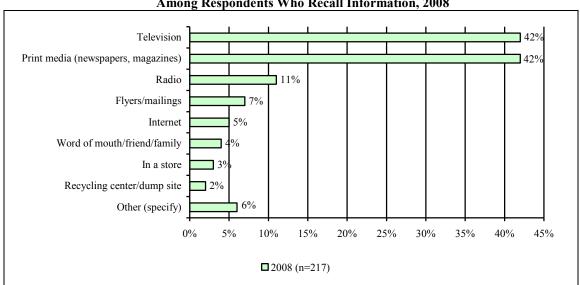


Figure 22: Where Respondents Recall Hearing or Seeing Information Among Respondents Who Recall Information, 2008

\*Chart based on: Q7: "Where did you see or hear the information?" Base excludes respondents who answered, "don't know/refused."

<sup>\*</sup>Chart based on: Q6: "Do you recall seeing or hearing any advertising, public information or news stories in the past two years about the best way to get rid of old televisions and computer monitors?" Base excludes respondents who answered, "don't know/refused."

The eRecycling campaign also included outreach to retailers. Nearly one-quarter of all residents surveyed (23 percent) reported that they had seen signs in retail stores encouraging them to recycle old televisions and computer monitors. When asked to the name the stores where they saw the signs, respondents most frequently cited Best Buy, followed by Frys, Costco, Wal-Mart, Target and Staples.<sup>11</sup>

# Familiarity with the eRecycle.org Website

The outreach campaign aimed to increase traffic to the eRecycle.org website, which provides information on where and how to dispose of unwanted electronic equipment. To measure the effectiveness of this effort, respondents were first asked if they had heard of the term "eRecycling" and if so, what the term meant. Results are presented in **Figures 23** and **24**.

More than one-third of all residents surveyed (35 percent) are familiar with the term eRecycling and, of those, 91 percent correctly understood the term to refer to the recycling of electronic equipment or the materials used to make such equipment. (It should be noted that survey findings may underestimate the proportion of residents who are familiar with the term eRecycling since residents 65 and older were slightly over-represented in the sample. Residents 65 and old were less likely to be familiar with eRecycling compared to younger respondents.)

Respondents overall were less likely to have heard of the eRecycle website (9 percent) compared with the term in general; however nearly half of residents surveyed said they would be more likely to conduct a general Internet search when looking for information on how to dispose of electronic equipment (45 percent) rather than lookup a specific government or environmental website (7 percent). Of those who had heard of the eRecycle.org, half had visited the website, most to find an eRecycle facility or event. 12

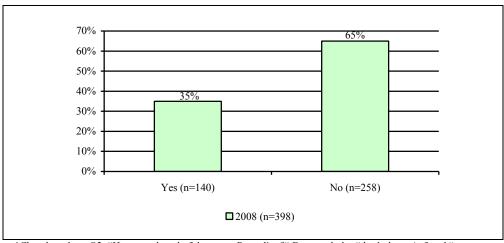


Figure 23: Proportion of Residents Familiar with the Term "eRecycling" Respondents Overall, 2008

21

<sup>\*</sup>Chart based on: Q2: "Have you heard of the term eRecycling?" Base excludes "don't know/refused."

<sup>&</sup>lt;sup>11</sup> There was no statistical difference in how frequently Frys, Costco, Wal-Mart, Target or Staples were mentioned. See Appendix A, Question 9a for a complete breakdown of percentages by store.

<sup>&</sup>lt;sup>12</sup> Results are based on extremely small samples and should be interpreted with caution. See Appendix A, Questions 5, 5a, and 5b for more details.

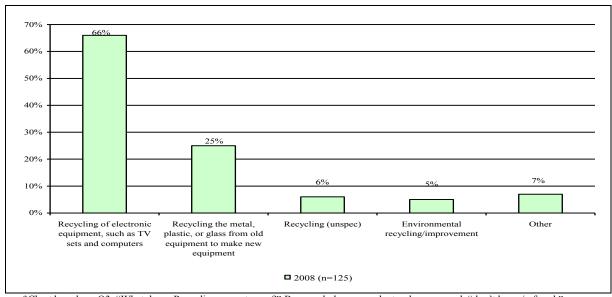


Figure 24: Residents' Understanding of the Term "eRecycle" Respondents Who Have Heard of the Term, 2008

\*Chart based on: Q3: "What does eRecycling mean to you?" Base excludes respondents who answered, "don't know/refused."

# Impact of the Switch to Digital Television

In preparation for the national switch from analog to digital television in 2009, respondents were asked if they were aware of the switch in technology, if they owned an analog television and how they were planning to respond. As seen in Figure 25, more than nine-out-of-ten residents surveyed (93 percent) reported that they were aware of the switch from analog to digital.

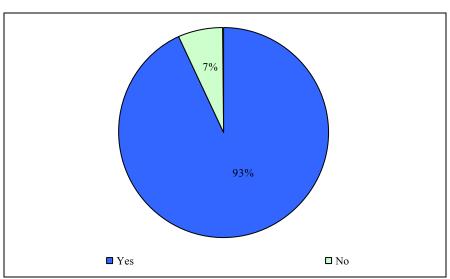


Figure 25: Proportion of Residents Aware of National Switch from Analog to Digital Television Respondents Overall, 2008 (n=398)

\*Chart based on: Q32 "Are you aware that the nation's television system is switching from analog technology to all digital in 2009?" Base excludes respondents who answered, "don't know/refused."

As seen in Figure 26, 28 percent of California residents are still using analog televisions.

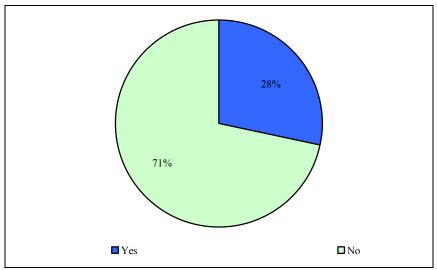


Figure 26: Proportion of Residents Using an Analog Television, Respondents Overall 2008 (n=395)

\*Chart based on: Q33 "Are you currently using an older, analog television that traditionally uses an antenna or rabbit ears for reception?" Base excludes respondents who answered, "don't know/refused."

Among those residents currently using analog technology, more than half (55 percent) intend to keep using their older televisions by purchasing converter boxes (32 percent) or by purchase cable or satellite services (23 percent). A total of 26 percent of all analog television owners said they had not yet made a decision or did not know how they would prepare for the digital switch. Results are presented in **Figure 27**.

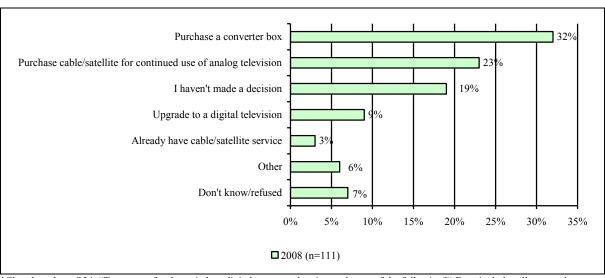


Figure 27: How Residents Are Preparing for the Switch to Digital Television Among Respondents With Analog Televisions, 2008

\*Chart based on: Q34: "To prepare for the switch to digital, are you planning to do any of the following?" Base includes all respondents who answered the question.

## CONCLUSIONS AND RECOMMENDATIONS

Although no baseline data were collected prior to the launch of the eRecycling campaign, post-campaign findings suggest that outreach efforts have been effective in raising awareness of the importance of properly disposing of unwanted televisions and computers, and for educating the public about where and how they can safely dispose of these items. The overwhelming majority of California residents understand that televisions and computer monitors contain hazardous materials (85 percent) and two-thirds (65 percent) are aware that it is illegal to throw away electronic waste along with their regular trash. In terms of behavior, 7 percent of all residents who had purchased a new television in the last two years, and 12 percent of those who had purchased a computer, had improperly disposed of their unwanted equipment. (Among all California residents are stockpiling their unwanted electronic equipment. (Among all California residents, including those who have not made a purchase in the last two years, 13 percent are storing a television and 16 percent are storing a computer monitor.)

While the majority of Californians are not stockpiling electronic equipment, residents continue to value their unwanted televisions and computers and may be reluctant to dispose of these items. When asked what they did with their old equipment, the majority of residents surveyed reported that were still using their old televisions and computers or gave those items away to family, friends, or charities.

In addition, while more than one-third of all respondents were familiar with the term eRecycling, few respondents were familiar with the website address or had visited eRecycle.org. Nearly half of all respondents reported that they conduct general Internet searches when looking for information on e-waste rather than enter a specific web address.

Finally, the switch from analog television to digital is widely understood. Nevertheless, one-quarter of residents who own an analog television have not yet decided or "don't know" how they will prepare for the switch to digital technology.

Based on these findings, we recommend the following strategies to continue to promote the proper disposal, recycling and reuse of unwanted electronic equipment.

Recommendation 1: Continue to publicize the value of donating or selling unwanted televisions and computers to friends, family, and, particularly charities for reuse. Some California residents continue to see value in their used televisions and computers and may be reluctant to dispose or even recycle these items, causing a stockpile of unwanted equipment. For these residents, donation may be a persuasive alternative.

24

<sup>&</sup>lt;sup>13</sup> The term "improper disposal" refers to the practice of throwing electronic waste out with the regular trash or storing it in the home or garage.

Recommendation 2: As the eRecycling program is further expanded, consider conducting the residential survey in both English and Spanish to parallel increased outreach to non-English speakers. As the campaign is further developed with expanded outreach to non-English speaking communities, consider conducting the tracking survey in English and Spanish to provide a more comprehensive profile of California residents and to identify community-specific approaches that are effective in targeting different populations.

Recommendation 3: Consider strategies for promoting the eRecycle.org website through search engine optimization and key word marketing to increase website traffic. Nearly half of residents surveyed said they would be more likely to conduct a general Internet search when looking for information on how to dispose of electronic equipment (45 percent) rather than lookup a specific government or environmental website (7 percent).

Recommendation 4: Continue to prepare for the 2009 switch to digital by emphasizing the various options that will allow consumers to continue to use their analog televisions, thereby reducing disposal requirements. A total of 28 percent of California residents have analog televisions and, of those, 19 percent are still undecided or "don't know" how the will adapt to the digital switch. While public awareness of the switch to digital technology is high, residents may not be as well informed about the pros and cons of various strategies for adapting their analog televisions.

# APPENDIX A: SURVEY INSTRUMENT WITH OVERALL FREQUENCIES

# California Integrated Waste Management Board (CIWMB) eRecycle Awareness and Behavior Survey 2008 FINAL with Frequencies

	FINAL with Frequencies						
Introduction	<u>n</u>						
Hello, my Protection questions.	name is I am calling on behalf of the State of California Environmental Agency. I am conducting a survey on residential recycling and would like to ask you a few						
01	willing to continue (n=400)						
02							
03	1						
04	1						
05							
06	,						
07 08							
08							
10							
11							
12							
Screener C	<u>tuestions</u>						
1. Are you	18 or older?						
01	Yes (n=400)						
02	No (Go to 1a)						
1 a. Is there	e someone who is over the age of 18 living in your home and who is available to talk now?						
01	Yes (Go back to introduction with new respondent) (n=400)						
02	No (If an adult who lives here is not currently present, enter yes to go back to introduction and arrange a call-back)						
Message/V	Veb Site Recall						
2. Have yo	u heard of the term eRecycling? (n=398)						
01	Yes 35%						
02	No (skip to Q4) 65%						
99	Don't know/refused 1% of all respondents asked the question (n=400)						
3. What do	oes "eRecycling" mean to you? (n=125)						
	Recycling of electronic equipment 66%						
	Recycling the metal, plastic, or glass from old equipment 25%						
03	Environmental recycling/improvement 5%						

05 Other (specify) 7%
99 Don't know/refused 11% of all respondents asked the question (n=140)

04 Recycling (unspec) 6%

```
4. Have you heard of a website called eRecycle.org? (n=395)
       01
               Yes 9%
       02
               No (skip to Q6) 91%
       99
               Don't know/refused 1% of all respondents asked the question (n=400)
5. Have you visited the website? (n=32)
       01
               Yes 16%
       02
               No (skip to Q6) 84%
       99
               Don't know/refused (skip to Q6) 6% of all respondents asked the question (n=34)
5a. [Ask if Q5=1] When you visited the website was it for general information or was it to search for an
eRecycling facility or event? (n=4)
       01
               General information 75%
       02
               eRecycle facility or event 25%
       03
               Both 0%
       99
               Don't know/refused 20% of all respondents asked the question (n=5)
5b. [Ask only if Q5a=3, all others go to Q6] What was the main reason? (n=0)
               General information
       01
       02
               eRecycle facility or event
               Other (specify)
       04
       99
               Don't know/refused
6. Do you recall seeing or hearing any advertising, public information or news stories in the past two
years about the best way to get rid of old televisions and computer monitors? (n=389)
               Yes 61%
       01
       02
               No (skip to Q9) 39%
       99
               Don't know/refused (skip to Q9) 3% of all respondents asked the question (n=400)
7. Where did you see or hear the information? (check all that apply. Probe: anywhere else?) (n=217)
               Television 42%
       01
       02
               Radio 11%
               Print media 42%
       02
       04
               In a store 3%
       05
               Internet 5%
               Flyers/Mailings 7%
       06
       07
               Word of mouth/Friend 4%
       08
               Recycling center/dump site 2%
       09
               Other (specify) 6%
               Don't know/refused 8% of all respondents asked the question (n=236)
       99
8. Can you tell me briefly what you remember about the ad or story? [Open ended. Record Verbatim]
(n=236)
       01
               About recycling (unspec/misc) 15%
               About recycling/disposing electronics/computers/TV's 26%
       02
               Location/where to recycle/dispose of waste 27%
       03
       04
               Not to dispose in trash/Landfills 7%
       05
               Protect/save the environment 4%
```

```
Other 9%
       07
       08
               Nothing/None 5%
       99
               Don't know/Refused 15%
9. [don't ask if answer to Q7 = 4, in a store. Backfill later] In the past two years, have you seen signs in
retail stores encouraging you to recycle old televisions and computer monitors? (n=384)
       01
               Yes 23%
       02
               No (skip to Q10) 77%
       99
               Don't know/refused (skip to Q10) 2% of all respondents asked the question (n=393)
9a. [Ask if answer to Q9=1] At which of the following stores did you see the signs? (Read options. Check
all that apply. Rotate stems) (n=74)
       01
               Wal-Mart 20%
       02
               Costco 23%
       03
               Best Buy 41%
               Sony 1%
       04
       05
               Frys 24%
               Office Max 9%
       06
       07
               Comp USA 1%
               Target 20%
       08
               Staples 22%
       09
        10
               Office Depot 5%
               Safeway 4%
        11
        12
               Circuit city 3%
        13
               Local store 1%
        14
               Other, specify 11%
       99
               Don't know/refused (don't read) 17% of all respondents asked the question (n=89)
Behavior
10. In the past two years did you or anyone in your household buy a new television? (n=400)
       01
               Yes 43%
       02
               No (skip to Q13) 57%
        99
               Don't know/refused (skip to Q13)
11. What did you do with your <u>old</u> television? [DON'T READ] (n=170)
               Threw it out along with the regular trash 1%
       01
       02
               Took it to a recycling center/collection site 15%
               Took it to a collection event or local government clean-up event 2%
       03
               Had it picked up by my waste hauler (special hazardous waste pickup) 1%
       04
               Donated to a charity 5%
       05
               Donated to a church or religious group 1%
       06
       07
               Donated to an educational institution 1%
               Gave it to a friend/family member 19%
       08
       09
               Stored it in my house/garage 5%
        10
               Storing it in my house/garage with intent to recycle 1%
               Still using it 37%
        11
        12
               Gave it to the store when bought new one 4%
```

06

Pickup points 3%

- Didn't have one 2% 13 14 Sold it 1% Other (specify) 11 99 Don't know/refused 1% of all respondents asked the question (n=172) 12. [Asked only of people who answered Q11=1; Q11=9] Why did you decide not to take your old television to a recycling center or collection event? (Check all that apply. Probe, "anything else?" Record first mention.) (n=9) All Mentions Easier to put in the trash 0% 01 02 Don't have the time 22% 03 Didn't know these items couldn't go in the regular trash 11% 04 Don't know where to go33% 05 Don't know when to go (what days/times) 0% Too heavy to carry 11% 06 07 Too few items to make it worthwhile 0% 80 Other (specify) 56% Don't know/refused 18% of all respondents asked the question (n=11) 99 12a. [Asked only of people who answered Q11=2, 3, or 4 or 20] Why did you decide to recycle your old television? (Do not read. Check all that apply. Probe: anything else? Record first mention). (n=31) All Mentions 01 Good for the environment 48% 02 Concerned about toxins leaking into the ground, air, or water 19% 03 Easy/convenient 32% 04 Required/it's the law/illegal to throw in regular trash 6% Did not want to throw it in landfill 6% 05 06 Right thing to do 10% It was not working 6% 07 Reusable/just to recycle 3% 08 09 Other (specify) 3% 99 Don't know/refused 3% of all respondents asked the question (n=32) 12b. [Asked only of people who answered Q11=5, 6, 7 or 8) Why did you decide to donate your old 01 It's a tax write off 10% 02 Others were in need 58%
- television? (Do not read. Check all that apply. Probe: anything else? Record first mention). (n=40) All Mentions

  - 03 Hate to waste 10%
  - 03 Better for the environment to reuse 10%
  - 04 Didn't know what else to do with it 20%
  - 05 It's illegal to throw in the regular trash 0%
  - I didn't need it 10% 06
  - 07 For a good cause/they needed it 8%
  - 80 It was still working 10%
  - It was old/needed another one 15% 09
  - 10 Other (specify) 10%
  - 99 Don't know/refused 7% of all respondents asked the question (n=43)

13. In the past two years did you or anyone in your household buy a new computer? (n=399) 01 Yes 37% 02 No (skip to logic before Q16) 63% 99 Don't know/refused (skip to logic before Q16) <1% 14. What did you do with your old computer monitor? [DON'T READ] (n=143) Threw it out along with the regular trash 0% 01 02 Took it to a recycling center/collection site 16% 03 Took it to a collection event or local government clean-up event 3% 04 Had it picked up by my waste hauler (special hazardous waste pickup) 1% 05 Donated to a charity 8% Donated to a church or religious group 0% 06 Donated to an educational institution 1% 07 80 Gave it to a friend/family member 15% 09 Stored it in my house/garage 10% 10 Storing it in my house/garage with intent to recycle 2% 11 Still using it 32% 12 Gave it to the store when bought new one 1% 13 Other (specify) 1% 14 Sold it 3% 15 Did not have one before 6% 99 Don't know/refused 4% of all respondents asked the question (n=149) 15. [Asked only of people who answered Q14=1; Q14=9] Why did you decide not to take your old computer monitor to a recycling center or collection event? (Check all that apply. Probe, "anything else?" Record first mention.) (n=12) All mentions Easier to put in the trash 0% 01 02 Don't have the time 25% 03 Didn't know these items couldn't go in the regular trash 0% 04 Don't know where to go 25% 05 Don't know when to go (what days/times) 17% Too heavy to carry 0% 06 Too few items to make it worthwhile 17% 07 08 Plan to use it again/ It still worked 25% 99 Don't know/refused 40% of all respondents asked the question (n=20) 15a. [Asked only of people who answered Q14=2, 3, or 4 or 20] Why did you decide to recycle your old computer monitor? (Do not read. Check all that apply. Probe: anything else? Record first mention). (n=26) All Mentions 01 Good for the environment 50% 02 Concerned about toxins leaking into the ground, air, or water 35% 03 Easy/convenient 12% 05 Required/ it's the law/ illegal to throw in regular trash 15% 06 Did not want to throw in landfill 8% Right thing to do 4% 07 08 Other (specify) 8% 09 Don't know/refused 19% of all respondents asked the question (n=32)

15b. [Asked only of people who answered Q14=5, 6, 7 or 8) Why did you decide to donate your old computer monitor? (Do not read. Check all that apply. Probe: anything else? Record first mention). (n=23) All Mentions 01 It's a tax write off 13% 02 Others were in need 57% 03 Hate to waste 17% 04 Better for the environment to reuse 9% 05 Didn't know what else to do with it 22% It's illegal to throw in the regular trash 4% 06 07 It was old/needed another one 13% 08 I didn't need it 13% 09 For a good cause/they needed it 9% 10 It was bulky/too large/no longer fit 4% Other (specify) 30% 11 Don't know/refused 34% of all respondents asked the question (n=35) 99 Go onto Q16 if answer to Q10=02 (Did not purchase a television in last two years) Everyone else skips to logic before Q20 Intent 16. If you needed to get rid of an old television what would you do with it? [DON'T READ] (n=228) 01 Throw it out along with the regular trash 4% 02 Take it to a recycling center/collection site 36% Take it to a collection event or local government clean-up event 5% 03 04 Have my waste hauler pick it up (special hazardous waste pickup) 6% Donate it to a charity 8% 05 Donate to a church or religious group <1% 06 Donate it to an educational institution <1% 07 08 Give it to a friend/family member 7% 09 Store it in my house/garage 2% 11 Sell it 3% 12 Recycle.org/recycling website <1% Take it to a store and have them dispose of it/ Trade it in 3% 13 14 Check online <1% 15 Call the city and find out 2% Other (specify) \_\_\_\_\_3% 16 Don't know/refused 18% 99 17. [Ask only if Q16= 01, 09 otherwise go to Q19] Why would you be unlikely to take your old television to a recycling center or collection event? (Read. Check all that apply) (n=13)Easier to put in the trash 0% 01 02 Don't have the time 0% 03 Didn't know these items couldn't go in the regular trash 23% Don't know where to go 46% 04 Don't know when to go (what days/times) 0% 05 Too heavy to carry 8% 06 07 Too few items to make it worthwhile 8% 80 Gas it too Expensive 15%

Don't know/refused 54% of all respondents asked the question (n=28)

09

99

Other (specify) 8%

18. [Asked of all, except those who answered Q16=05, 06, 07, 08 Those skip to logic before Q20] How likely would you be to donate your old television? (n=365)Very likely 28% 01 Somewhat likely 12% 02 03 Not at all likely (skip to logic before Q20) 12% Don't know/refused (skip to logic before Q20) 49% 99 19. If so, what types of groups would you consider donating to? (READ, ROTATE STEMS) (n=138) Church or religious group 36% 02 Charity 65% 03 Educational Institution 34% 04 Family/friend in need 46% 05 Good Will 2% The City 1% 06 Veteran's Organization 2% 07 Salvation Army 1% 80 Other (specify) (Don't read) 5% 09 99 Don't know/refused 4% of all respondents asked the question (n=144) Continue to Q20 if answer to Q13=02 (did not purchase a computer in last two years) Everyone else skips to logic before Q24 20. If you needed to get rid of an old computer monitor what would you do with it? [DON'T READ] (n=250)01 Throw it out along with the regular trash 3% 02 Take it to a recycling center/collection site 32% Take it to a collection event or local government clean-up event 4% 03 Have my waste hauler pick it up (special hazardous waste pickup) 4% 04 05 Donate it to a charity 11% Donate it to a church/religious group 2% 06 07 Donate it to an educational institution 3% 08 Give it to a friend/family member 10% 09 Store it in my house/garage 2% Sell it 4% 10 11 Take it to a computer store 2% 12 Other (specify) 4% 99 Don't know/refused 20% 21. [Ask only if Q20= 01, 09] Why would you be unlikely to take your computer monitor to a recycling center or collection event? (Read. Check all that apply) (n=10) 01 Easier to put in the trash 10% 02 Don't have the time 0% 03 Didn't know these items couldn't go in the regular trash 10% 04 Don't know where to go 40% Don't know when to go (what days/times) 0% 05 Too heavy to carry 0% 06 Too few items to make it worthwhile 10% 07 80 Gas too expensive 30% 09 Other (specify) 20% 99 Don't know/refused 57% of all respondents asked the question (n=23)

- 22. [Asked of all, except those who answered Q20=5, 06, 07, 08] How likely would you be to donate your old computer monitor? (n=190)
  - 01 Very likely 48%
  - O2 Somewhat likely 21%
  - Not at all likely (skip to Q24) 16%
  - 99 Don't know/refused (skip to Q24)14%
- 23. If so, what types of groups would you consider donating to? (READ, ROTATE STEMS) (n=126)
  - 01 Church or religious group 27%
  - 02 Charity 61%
  - 03 Educational Institution 47%
  - 04 Family/friend 38%
  - 05 The City 1%
  - 06 Salvation Army 1%
  - 07 Recycling center 2%
  - Other (specify) (Don't read) 5%
  - 99 Don't know/refused (don't read) 5% of all respondents asked the question (n=132)
- 24. [Ask of all except those who answered Q11=09 or 20. For those, skip to Q24a] Do you currently have any unwanted televisions stored in your home or garage? (n=389)
  - O1 Yes 11% (combined with responses from Q11=13%; n=400)
  - No (skip to logic before Q24b) 89% (combined with responses from Q11=87%; n=400)
  - 99 Don't know/refused (skip to logic before Q24b)

24a. In total, how many unwanted televisions are you currently storing in your home or garage? [Range: 0-99] (n=53)

- 1 **62%**
- 2 30%
- 3 4%
- 4 **2**%
- 5 **2%**
- 24b. [Ask of all except those who answered Q14 =09 or 20. For those, skip to Q25] Do you currently have any unwanted computer monitors stored in your home or garage? (n=383)
  - O1 Yes 13% (combined with responses from Q14=16%; n=400)
  - No (skip to Q26) 87% (combined with responses from Q14=84%; n=400)
  - 99 Don't know/refused (skip to Q26) (n=1)
- 25. In total, how many unwanted computer monitors are you currently storing in your home or garage? [Range: 0-99] (n=64) mean = 1.4
  - 1 **73%**
  - 2 **20%**
  - 3 3%
  - 6 2%
  - 7 **2%**

## **General Awareness**

- 26. How important do you think it is to recycle electronic-waste, such as old televisions and computer monitors? (n=384)
  - 01 Very important 84%
  - O2 Somewhat important 15%
  - Not at all important (skip to Q28) 2%
  - 99 Don't know/refused 4% of all respondents asked the question (n=400)
- 27. Why do you think it's important to recycle these items? (RECORD FIRST MENTION) (n=377) All Mentions
  - 01 It leaks hazardous material (skip to Q29) 42%
  - parts/materials can be used to make new equipment, preserving scare resources 47%
  - Bad for the environment 52%
  - 04 It's illegal 2%
  - 05 It's not important 1%
  - They don't belong in land fills 8%
  - To reduce waste 4%
  - For the future 1%
  - For a good cause/right thing to do 2%
  - To save space/too big/many 2%
  - For safety reasons 1%
  - 12 Other 4%
  - 99 Don't know/refused 9%
- 28. Before this survey, were you aware that televisions and computer monitors contain hazardous materials? (n=241)
  - Yes 75% (85% when combined with responses from Q27=01; total n=397)
  - No 25% (15% when combined with responses from Q27; total n=397)
  - 99 Don't know/refused? 1% of all respondents asked Q28 (n=244)
- 29. Did you know that in California it is illegal to throw away electronics in the trash because of the hazardous material they contain? (n=397)
  - 01 Yes 65%
  - 02 No 35%
  - 99 Don't know/refused? 1% of all respondents asked the question (n=400)
- 30. Before this survey, were you aware that there is a recycling fee placed on the purchase of new televisions and computers to help pay for their proper disposal? (n=391)
  - 01 Yes 36%
  - 02 No 64%
  - 09 Don't know/refused 2% of all respondents asked the question (n=400)
- 31. If you needed more information about how to recycle an old television or computer monitor, where would you go? (Do not read. Record first mention) (n=400) All Mentions
  - O1 General Internet search 46%
  - O2 Government Agency website 6%
  - O3 Government Agency calling or visiting 14%
  - 04 Environmental organization 8%

05 University 0% Library 0% 06 Friends/family 9% 07 Phonebook 11% 08 Local Recycling Center 8% 09 eRecycle.org/ recycling website 1% 10 11 Local Waste Management 10% 12 Retail store 11% 13 Goodwill store 1% 14 Newspaper/newsletter 3% 15 At work/co-workers 1% 16 Internet (unspec) 1% 17 Television 1% 18 Fire department 1% 19 Other (specify) 3% 99 Don't know/refused 24%

## Switch from Analog to Digital Television

- 32. Are you aware that the nation's television system is switching from analog technology to all digital in 2009? (n=398)
  - 01 Yes 93%
  - 02 No 7%
  - 09 Don't know/refused 1% of all respondents asked the question (n=400)
- 33. Are you currently using an older, analog television that traditionally uses an antenna or rabbit ears for reception? (n=395)
  - 01 Yes 28%
  - 02 No (skip to 35) 71%
  - 09 Don't know/refused (skip to 35) 1% of all respondents asked the question (n=400)
- 34. To prepare for the switch to digital, are you planning to do any of the following [Read list, Check one] (n=111)
  - 01 Purchase a converter box 32%
  - Upgrade to a digital television 9%
  - Purchase cable/satellite services, which will allow you to use your analog television 23%
  - I haven't made a decision [do not read] 19%
  - O5 Already have cable/satellite 3%
  - Other (specify) (Don't read) 6%
  - 99 Don't know/refused? [do not read] 7%

## **Demographics**

I'd like to ask you a few final questions for research purposes only. Your answers are confidential.

```
35. What year were you born? (n=373)
           18-29
                     10%
          30-49
                     28%
          50-64
                     33%
          65+
                     30%
36. What is the highest level of school completed by anyone living in your household? (DON'T READ)
(n=393)
       01
           Grades 1-8 1%
       02 Grades 9-11 1%
       03 High School Graduate/ GED 14%
       04 Some College/Vocational Training 23%
       05 College Graduate 37%
       06 Post Graduate/Professional School 25%
       99 Refused 2% of all respondents asked the question (n=400)
37. Would you please tell me what ethnic group you identify with? Are you Hispanic/Latino,
Black/African American, Asian, Caucasian, or of some other ethnic or racial background? (n=400)
       01
           Hispanic/Latino 12%
       02 Black/African American 5%
       03 Asian 6%
       04 Caucasian 66%
       08 Other 6%
           Refused (DON'T READ) 5%
38. I am going to read some categories of household income. Please stop me when I
       reach the category of your total 2007 annual household income, before taxes: (n=321)
       01 Less than $20,000 12%
       02 More than $20,000 but less than $35,000 16%
       03 More than $35,000 but less than $50,000 11%
       04 More than $50,000 but less than $75,000 19%
       05 More than $75,000 but less than $100,000 17%
       06 More than $100,000 but less than $150,000 12%
       07
           More than $150,000 but less than $200,000 7%
       08 Over $200,000 8%
           Refused (DON'T READ) 20% of all respondents asked the question (n=400)
39. What county do you live in?
40. (GENDER BY OBSERVATION-- DON'T READ) (n=400)
         male
                     52%
       1
       2 Female
                     48%
```

That concludes our survey. Thank you very much for your time.

## APPENDIX B: OPEN-ENDED RESPONSES TO Q8

Q8: Can you tell me briefly what you remember about the ad or story? TO TAKE WHAT WOULD BE APPROPRIATE FOR E WASTE, AND WHERE TO AND NOT TO GET RID OF IT. What day they would pickup ABOUT RECYCLING CENTERS OPEN ON SATURDAY AD REVOLVED AROUND EARTH DAY city periodic has a time to bring electronic devices IT JUST SAID TO RECYCLE ALL YOUR OLD ELECTRONICS AND **COMPUTERS AND STUFF** goodwill licensed by state NOTHING JUST ANOTHER TV AD not sure LOTS OF FOREIGN ACCEPT E-WASTE, BUT INEFFICIENT PROCESS OF THE WASTE; EVEN DAMAGING TO THE ENVIRONMENT. HOWEVER, THERE ARE ORGANIZATIONS THAT ARE BETTER AT PROCESS SUCH. I REMEMBER THE AD SAYING THAT WE SHOULD RECYCLE OLD TELEVISIONS BECAUSE THEY CONTAIN MERCURY LIKE OLD FLUORESCENT LIGHTS DO WHERE TO TAKE THE STUFF TO **NOTHING** ON CERTAIN SATURDAYS THEY HAD RECYCLING AT CERTAIN WAL-MART'S NEWSPAPER AND COSTCO MAGAZINE put item on lawn and someone will come pick it up (the city) TAKE THEM OVER TO THE LANDFILL RECYCLE THE PRODUCTS THEY SAID WHERE YOU COULD TAKE THESE THINGS I DON'T REMEMBER They have for fund raising and ask for TV and computers to be recycled NO I DON'T KNOW SELL IT Don't remember required something special it would go in a special area I do not remember THERE ARE CERTAIN PLACES THAT YOU CAN TAKE ELECTRONICS TO RECYCLE THEM I don't recall I JUST HEARD THAT THEY WANTED YOU TO TAKE YOUR ELECTRONIC WASTE TO A LOCAL AREA IN TOWN EVERY SATURDAY I REMEMBER THAT THEY HAD A COLLECTION FAIR I do not remember The types of programs about how to get rid off that type of equipment I DON'T RECALL Know how to get rid of these things YOU CAN RECYCLE STUFF LOOKING AT DIFFERENT WAYS. TO RECYCLE YOUR THINGS RADIO NEW INFORMATION ABOUT ELECTRONICS

That there's a place close to us that takes computers and recycles **Nothing** Refused they talk about bring in the old electronic equipments. THERE IS ENOUGH MERCURY TO POISON THE GREAT LAKES. CONTAMINATING OUR WATER THE LANDFILLS .THE AVERAGE AMERICAN LIVES WITHIN FOUR MILES OF THESE SUPER LANDFILLS RECYCLE The recycling ad of Boy Scouts from a local high school. They location to recycle electronic stuff THEY WOULD TAKE CARE OF IT RECYCLE PRINTER CARTRIDGES JUST HAD TO RECYCLE IN LA Not throwing in the trash JUST WERE WHEN THERE IS A RECYCLING CENTER SEGREGATE WASTE FROM THE OTHER STUFF PLACES TO DISPOSE OF OLD HARD WARE IT GAVE DIRECTIONS ON HOW TO GET THERE THE LIST OF THE ITEMS THERE WAS A MAP ON IT ON ONE SIDE IT WAS IN SPANISH IT HAD **EVERYTHING I NEEDED TO KNOW** I JUST REMEMBER THEY HAVE ELEMENTS THAT ARE NOT SUPPOSE TO GO INTO LANDFILL they said a date you can bring old things to a specific JUST GIVE US A PLACE GET RID OF STUFF LIKE THAT I can't dump it in my trash DAY THAT YOU CAN RECYCLE Nothing NONE ALL I REMEMBER IS THAT IT WAS ON MPR OR CHANNEL 88 NOT TO TAKE TO REGULAR WASTE. THAT IT GOES TO SPECIAL RECYCLING PLACE It talked about doing your part in the environment Nothing I DON'T REMEMBER It showed things that are hard to recycle Take TVs to certain places to recycle. It gives addresses to take televisions for recycling JUST WHERE TO TAKE IT TO GET RECYCLED AT THE MONTEREY FAIR **GROUNDS** That was the E recycle day for everyone to bring in the old electronics equipments for recycling. they pick up old computers They show electronic stuff to recycle **NOTHING** THEY JUST GIVE A RUNDOWN OF WHAT YOU CAN RECYCLE AND WHERE AND WHEN YOU CAN BRING IT IN I DON'T REMEMBER I don't know Take your electronic to location THERE WAS A CERTAIN PICK UP POINT

SOUTH BAY THEY WERE TAKING METALS OUT OF TV'S AND COMPUTER SCREENS I DON'T REMEMBER None WHERE TO TAKE HAZARDOUS WASTE DO NOT REMEMBER **PUT IT UPSTAIRS** I COULDN'T SAY THEY SAID NOT TO THROW IT AWAY IN THE TRASH AND TO TAKE IT TO AN ELECTRONIC RECYCLE CENTER WHERE TO TAKE YOUR THINGS TO RECYCLE THEM SOMETIMES THEY HAVE RECYCLING THAT YOU COULD TAKE THINGS TOO THAT TV RADIOS AND COMPUTERS HAVE LEAD AND THAT YOU'RE SUPPOSED TO RECYCLE THEM THE CENTER NOW ACCEPTS ELECTRONIC WASTES, SUCH AS MONITORS, TV, ET CETERA FREE OF CHARGE. to take all those electronics to certain location to be picked up PUBLIC SERVICE ANNOUNCEMENTS AND ON THE NEWS, WHERE TO TAKE MONITORS AND TV AND COMPUTERS For the days take TVs and computers to dispose of it PLACES TO COLLECT AND RECYCLE ELECTRONIC PARTS I do not remember. OLDER ELECTRONICS SHOULD BE RECYCLED NOT PUT IN LANDFILLS JUST GENERAL INFO YOU TAKE TVS AND COMPUTERS OUT TO A PLACE FOR FREE. THAT IT IS TOXIC. They said to take it somewhere. Local recycling center General recycling information THEY TOLD ME WHERE TO GO FOR AN OLD TV SET. It was on the news. They leak. A PLACE TO RECYCLE OLD TVS AND COMPUTERS. Those items shouldn't go in the land fills. I DON'T REMEMBER MUCH JUST THAT THEY SAID IT COULD NOT BE THROWN IN WITH THE REGULAR TRASH. They were saying there is a place to recycle them. THE CITY OF Palo Alto HAS A PLACE TO TAKE OLD COMPUTERS. IT JUST WAS SHOWING WAYS TO REDUCE LITTERING. Local recycling center, where to take them, and how to send them mail. They said not to throw these in the trash. ADVERTISE CERTAIN DATES TO TAKE TVS PHONES AND BATTERIES TO THE STORE TO DISPOSE OF THEM. Take the item to a specific location. Telling me where to take an old television. HP AND SONY WOULD RECYCLE ANYBODY'S COMPUTERS. THEY HAD A SIGN ON THEIR TRUCK AND WERE WAVING A SIGN. Special ways to recycle.

Just that there's places where you can take it. YOU TOOK TVS AND COMPUTERS TO THE PLACE. I don't recall It was about saving the planet I can't remember It was about recycling electronic goods. I DON'T REMEMBER MUCH It was about getting rid of unwanted waste to save the environment. I DON'T REMEMBER It talked about safe places to dispose of your TV or computer monitor. IT SAYS THAT TVS AND COMPUTER MONITORS HAVE THINGS THAT ARE BAD FOR THE ENVIRONMENT. It talks about how all of the computers are piled up. They told me not to throw away the computer monitors. TAKE YOUR STUFF TO THE SALVATION ARMY AND ALSO A HAZARDOUS WASTE ROUNDUP COMING UP JUNE 13TH I DON'T REALLY REMEMBER. THAT YOU CAN'T THROW AWAY TVS BECAUSE IT IS NOT GOOD FOR THE ENVIRONMENT. THAT RECYCLING HAS COME AND GONE It said they are one of the best ways to get rid of TVs and monitors. PROVIDE A NUMBER TO CONTACT REGARDING RECYCLING You can recycle at special places during certain times. THEY WERE TALKING ABOUT WHERE TO DISPOSE OF OIL PROPERLY. They gave location, dates and times of when it was best to recycle. CERTAIN AREAS ARE BEING DESIGNATED FOR PROPER DISPOSAL OF **ELECTRONICS** I DON'T REMEMBER THE AD THAT IT WAS BAD FOR THE ENVIRONMENT JUST TO DUMP THEM OR SOMETHING I DON'T REMEMBER THE AD IT SAID NOT TO DUMP TVS AND MONITORS IN LANDFILLS BECAUSE IT IS It told you where to bring computer parts and monitors locally to recycle them. THAT WE CAN TAKE TVS, COMPUTERS AND OTHER ELECTRONICS TO A SPECIAL LOCATION FOR RECYCLING. IT SHOWS YOU HOW TO MAKE APPOINTMENTS FOR RECYCLING. IT WAS ABOUT A DRIVE TO CLEAN OUT THINGS FOR THE DUMP AND IT GAVE THE NAME AND PHONE NUMBER OF SA COMPANY TO CONTACT EDUCATED ON WHERE AND WHEN YOU CAN TAKE YOUR OLD TVS TO RECYCLE. It mentioned a "Clean Up Your Yard Day" where you bring your old computers IT MENTIONED A COLLECTION SITE FOR OLD TV'S AND COMPUTERS. IF I HAD THINGS I NEED TO GET RID OF, TO TAKE IT TO THIS PLACE. I ONLY REMEMBER THAT IT TALKED ABOUT TV'S AND ELECTRONIC EQUIPMENT AND THAT YOU HAVE TO PAY. IT GAVE INFORMATION ON WHERE TO DISPOSE OF ELECTRONICS IN OUR COMMUNITY.

THEY LISTED THE FREE DROP OFF PLACES THAT YOU SHOULD NOT GET RID OF YOUR COMPUTER OR ELECTRONIC EQUIPMENT THROUGH THE TRASH OR REGULAR RECYCLING. E-WASTE IS WHERE YOU CAN LOCALLY DROP OFF ELECTRONICS FOR RECYCLING. YOU CAN DROP OFF ELECTRONICS FOR FREE ON THE WEEKENDS That dumping electronics in the trash is illegal and you have to take them to a special recycling center. I just remember ads telling you where to recycle WELL IT'S TELLING YOU WHAT TO DO WITH OLD TV'S, PAINTS AND BATTERIES AND WHERE TO TAKE THEM. It mentioned a couple of new programs. YOU CAN GO TO A SPORTS ARENA TO TURN IN OLD EQUIPMENT. SOME WERE ABOUT WHERE TO TAKE YOUR CELL PHONES OR TELEVISION SETS WHEN YOU DON'T WANT THEM ANYMORE. IT TELLS YOU WHERE YOU CAN TAKE YOUR WHERE YOU CAN BRING YOUR OLD ELECTRONICS TO DISPOSE OF SAFELY. It talked about recycling all electronic equipment. I cannot remember anything in particular. I REMEMBER IT BRIEFLY MENTIONING THE WEBSITE. none THERE WAS MENTION OF A RECYCLING FAIR That you should not throw televisions in the trash THAT IT'S AGAINST THE LAW TO PUT ELECTRONICS IN THE DUMPSTERS. DON'T THROW AWAY OLD TELEVISIONS AND RECYCLE THEM JUST WAS STATED WHAT CAN BE RECYCLED AND THE WEBSITE I JUST REMEMBER THE BANNERS I DON'T REMEMBER IF YOU HAVE E-WASTE, YOU CAN GET RID OF IT WHERE YOU CAN TURN IN THE E-WASTE AND THE BENEFITS OF IT THERE ARE PLACES TO DISPOSE OF ELECTRONIC E-WASTES I DON'T REMEMBER MUCH ABOUT IT. THE POSSIBILITY OF RECYCLING HOME ELECTRONICS LIKE TV'S AND OTHER ELECTRONICS JUST THAT THEY RECYCLE TELEVISIONS AND BATTERIES THEY GIVE A NUMBER FOR A RECYCLING CENTER location where you take electronics THE COMPANY CAME BY TO COLLECT ELECTRONIC WASTE my daughter brought a flyer home **GETTING METALS OUT OF THEM** LETTING US KNOW THERE ARE CERTAIN MATERIALS THAT SHOULD NOT BE PUT IN THE GARBAGE BECAUSE OF ENVIRONMENTAL PROTECTION REASONS Anything that has electric cord can be recycled THEY SAID THAT ITS BAD FOR ENVIRONMENT THE LOCATION WHERE TO TAKE THE STUFF ABOUT THE CENTER WHERE TO DROP YOUR E-WASTE They had a list of what to bring in

WHAT TO RECYCLE DON'T THROW IT IN THE TRASH I DON'T RECALL I don't remember exactly I DON'T RECALL remember seeing a pile of electronics THE LOCATIONS THEY HAVE WHERE TO LEAVE YOUR E-WASTE IT TALKED ABOUT PLACES WHERE TO DROP OFF ITEMS IT WAS ABOUT WHERE TO TAKE YOUR ITEMS I PERSONALLY WAS DOWN AT ONE PLACE AT BARKLEY RANCH AND THEY HAD A SPECIAL EVENT FOR EARTH DAY AND THEY HAD A **COLLECTION SITE THERE** I don't recall **Nothing** JUST THAT YOU CAN RECYCLE AT A CERTAIN PLACE they want you to recycle certain items Just were you can go and recycle it IF YOU HAVE CERTAIN ITEMS TO DISPOSE OF THEY'LL TELL YOU WHERE TO TAKE THEM On how to recycle them and where they can be used at I AM NOT SUPPOSED TO THROW THEM IN THE LANDFILLS Just how to recycle FLYERS DISPOSAL DAYS AT THE CITY PARK WHERE TO DROP SOMETHING THAT YOU COULD BRING THEM TO SOME PLACE RATHER THAN THROW THEM Were to take those things YOU CAN'T DISPOSE OF IT IN THE TRASH I don't recall I DON'T RECALL Instruction how to disposal of them and the address for recycling center I KNOW THAT YOU CAN'T THROW THEM IN THE REGULAR TRASH It said I could leave it on the lawn for someone to pick it up I DON'T REMEMBER To check local sources NONE Where to recycle the items I KNOW THAT I AM NOT SUPPOSED TO THROW THESE THINGS AWAY THERE ARE SEVERAL DROP OFF POINTS AND THAT YOU ARE NOT TO PUT THEM OUT WITH YOUR HOUSE TRASH THEY WOULD TAKE ELECTRONIC STUFF IF YOU BRING IT I don't remember I don't recall TO TAKE YOUR TV TO A LOCAL RECYCLING CENTER Nothing if you have old computer were to take them CHANNEL 3 IN SACRAMENTO RAN A DRIVE A FEW WEEKS AGO TO RECYCLE OLD TV'S AND MONITORS AND APPARENTLY THEY GOT AN **OUTRAGEOUS AMOUNT OF THEM** 

A NUMBER TO CALL WHERE YOU CAN TAKE YOUR TELEVISION TO. THEY GIVE YOU AN ADDRESS AND THAT YOU ARE NOT SUPPOSED TO PUT IT IN YOUR TRASH.